March 27, 1934. J. L. LE GORRE 1,953,019

FLASHLIGHT MECHANISM

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Fig. 2.

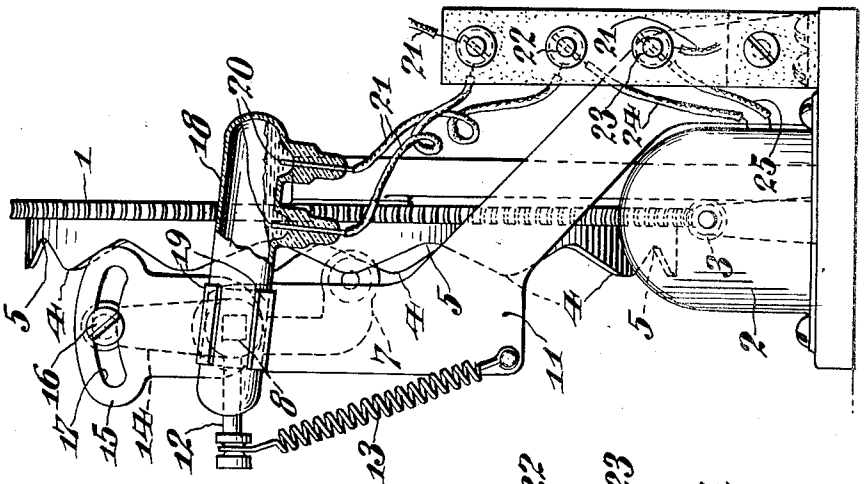
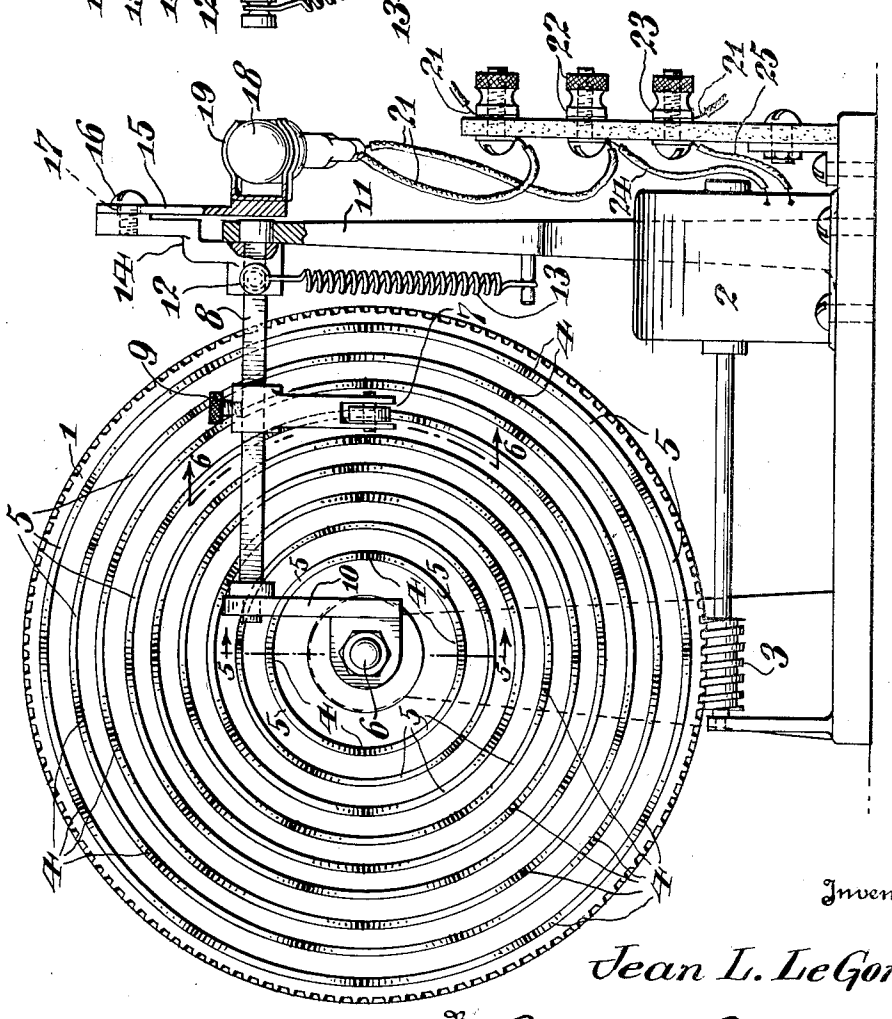


Fig. 1.



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Fig. 4.

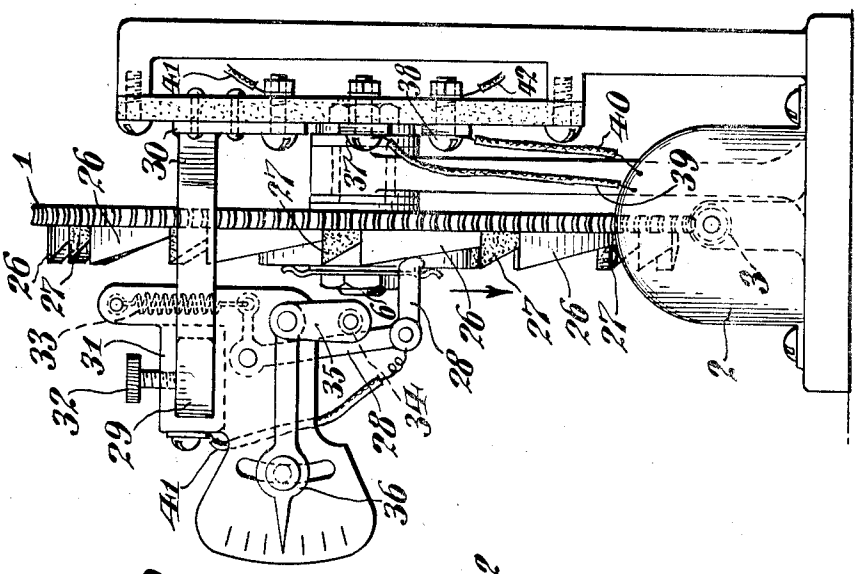
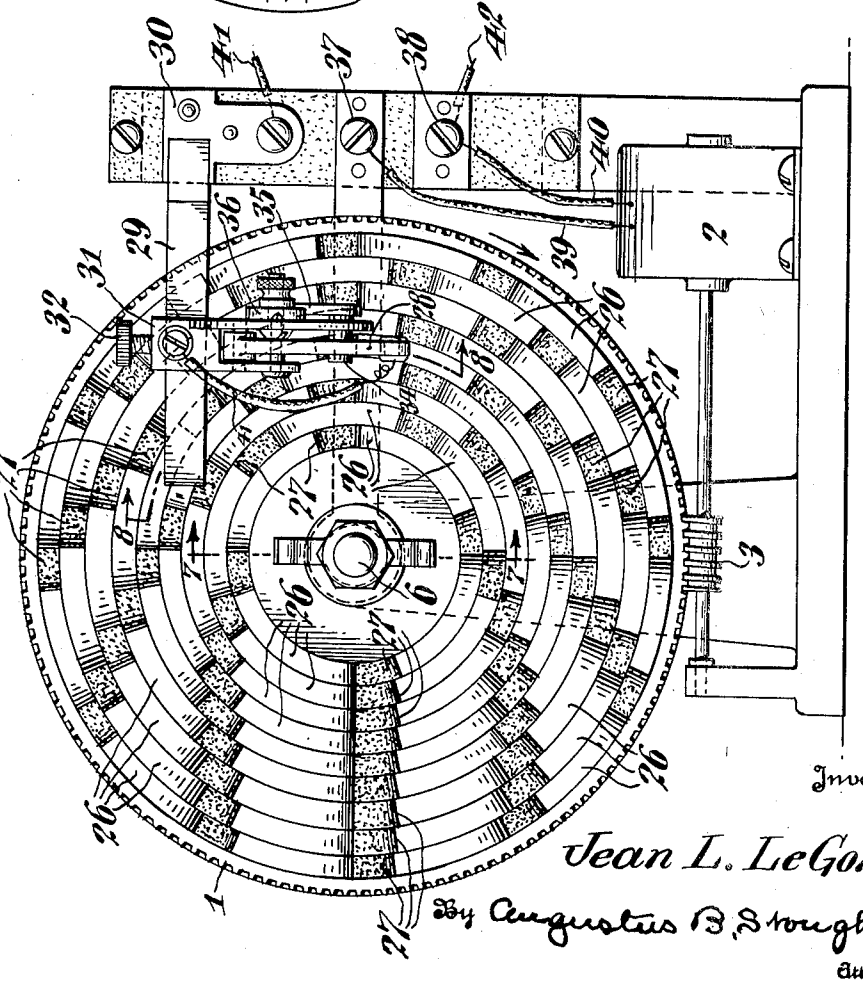


Fig. 3.



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FLASHLIGHT MECHANISM

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Fig. 8.

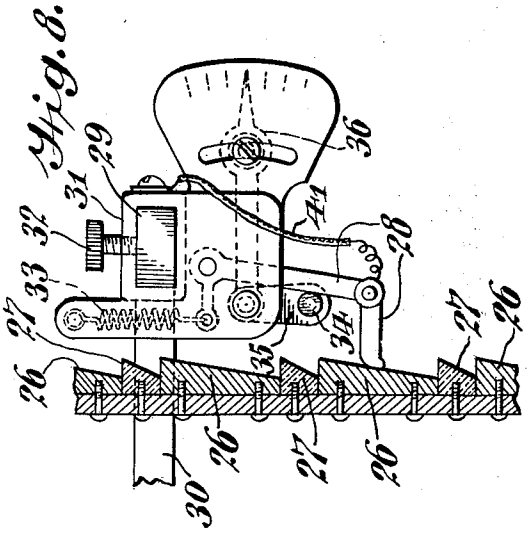


Fig. 9

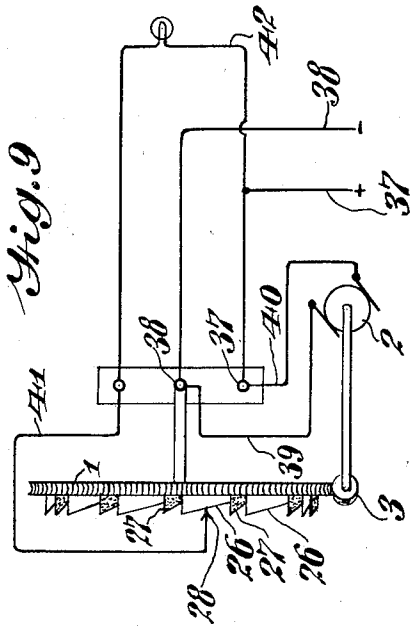


Fig. 6.

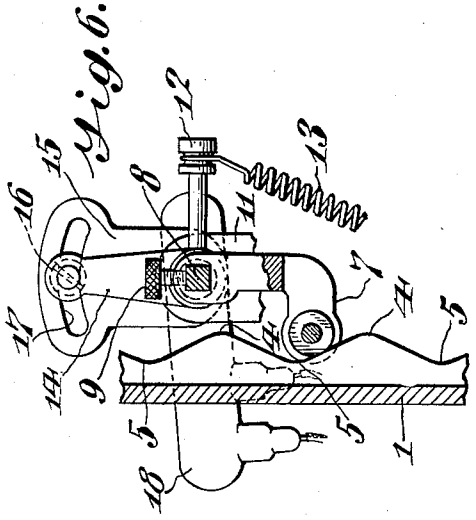


Fig. 7.

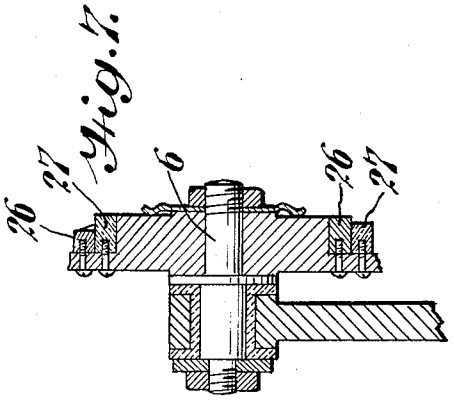
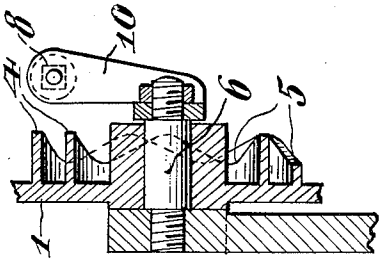


Fig. 5.



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Patented Mar. 27, 1934 1,953,019

UNITED STATES PATENT OFFICE

1,953,019

FLASH LIGHT MECHANISM

Jean L. Le Gorre, Philadelphia, Pa., assignor to Welsbach Traffic Signal Company, Philadelphia, Pa., a corporation of Delaware

Application July 28, 1932, Serial No. 625,557

3 Claims. (Cl. 200—32)

The principal object of the present invention is to provide an efficient, reliable and comparatively inexpensive flashlight which can be easily and conveniently adjusted in the field to change the number of flashes of light per unit of time and to change the relative duration of the periods of light and darkness at each flash, and which, in case of accident, will show continuous light.

Other objects of the invention will appear from the following description.

Generally stated the invention comprises a cam carrier driven at constant speed of revolution per unit of time and having alternating high and low cam parts arranged in circular rows concentric with the axis of revolution of the carrier and spaced apart at substantially equal linear distances in each row, a cam follower adapted to make and break a lamp circuit and adjustable across the face of the carrier for cooperation with the high and low cam parts of any one of the circular rows to provide different numbers of lamp flashes per unit of time, and means for adjusting the relative duration of the periods of the makes and breaks in respect to each other to provide for different relative lengths of periods of light and darkness in the flashes.

The invention also comprises the improvements to be presently described and finally claimed.

In the following description reference will be made to the accompanying drawings forming part hereof and in which

Figure 1 is an elevational view of flashlight mechanism embodying features of the invention.

Fig. 2 is a side view of the same.

Figs. 3 and 4 are similar views illustrating a modification.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 1.

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 1.

Fig. 7 is a sectional view taken on the line 7—7 of Fig. 3.

Fig. 8 is a sectional view taken on the line 8—8 of Fig. 3, and

Fig. 9 is a diagram illustrative of the wiring indicated in Figs. 3 and 4.

Referring to the drawings and more particularly to Figs. 1, 2, 5 and 6, 1 is a cam carrier, and it is driven at constant speed of revolution per unit of time. This is accomplished in the device selected for illustration by means of the electric motor 2 driving a worm 3 meshing with teeth on the periphery of the cam carrier 1. The motor 2 runs at substantially constant speed, and it may be a synchronous motor or a telechron motor. Upon the cam carrier are alternating high parts 4 and low parts 5, and these are arranged in circular rows concentric with the axis of revolution 6 of the carrier, and the high and low parts are spaced apart at substantially equal linear distances in each row. 7 is a cam follower and it is adapted to make and break a lamp circuit, and it is adjustable across the face of the carrier for cooperation with high and low cam parts of any one of the circular rows to provide different numbers of lamp flashes per unit of time or for each revolution of the cam carrier. As shown the cam follower 7 is arranged for adjustment endwise along an oscillatable shaft 8. The shaft and the opening through which it passes are shown as squared. 9 is a set screw for use in making this adjustment. The shaft 8 is turnably mounted in supports 10 and 11, and it is provided with an arm 12, Fig. 6, acted upon by a spring 13, connected to the post or support 11 and adapted to hold the follower 7 up to the cam parts. The shaft 8 is provided with a crank arm 14 which rocks back and forth as the shaft 8 oscillates. A carrier 15 is connected with the crank arm 14 by a screw 16 arranged in a slot 17 in the carrier. The carrier 15 carries a mercury contactor tube 18 in such a way that the tube can be turned end for end. As shown spring clips 19 are employed for this purpose. The contacts 20 of the tube 18 are connected in the lamp circuit 21. Power is introduced at 22 and 23. The lamp, not shown, is connected in the circuit 21 so as to be flashed by interruption of current therein. The motor 2 is always in circuit by way of the leads 24 and 25. The duration of contact of the mercury with the contacts 20 for each oscillation of the shaft 8 can be increased or diminished by appropriately setting the carrier 15 and mercury contact tube 18. By detaching the mercury tube from the carrier and turning the mercury tube end for end the relative duration of light and darkness in the flashes can be reversed. If the spring 13 should break or become ineffective, the weight of the mercury in the tube will turn it into position for keeping the lamp circuit closed.

The mode of operation may be described as follows:

In the use of flashlight mechanism, perhaps more particularly in traffic service and in order to meet the wishes of traffic engineers, it is desirable to be able to adjust in the field and with facility not only the number of flashes per unit of time but also the relative duration of light and darkness in each flash. To adjust the num-

ber of flashes per unit of time all that is required is to move the cam follower 7 across the face of the cam carrier 1 from one circular series or row of high and low cam parts to another row of high and low cam parts. To adjust the relative duration of the periods of light and darkness in each flash the angularity of the carrier 15 is adjustable in respect to the rocker arm 14, and, if desired, the mercury tube 18 can be turned end for end.

The construction and mode of operation of the modification shown in Figs. 3 and 4 are as above described except as follows:

The alternating cam parts 26 and 27 are respectively of conducting and insulating material, and the parts of conducting material are included in the circuit through the cam carrier. The cam follower 28 is in the circuit and it, in riding on conducting and insulating cam parts, makes and breaks the lamp circuit. On an arm 29 of a bracket 30 is arranged for sliding movement a carriage 31 adjustable on the arm 29 by means of a set screw 32. The cam follower 28 and its spring 33 are carried by the carriage. To adjust the duration of the make in respect to the break in the lamp circuit there is provided a stop 34 arranged in the path of the cam follower and carried by one arm of a bell crank lever 35 carried by the bracket, and the other arm 36 of the bell crank lever affords means for positioning the stop 34. The stop prevents the cam follower 28 from riding on a contact 26 for the full length of the face of the contact and in that way the duration of the contact can be adjusted. The diagram for the circuits, Fig. 9, shows that the power comes in at 37 and 38, that the motor 1 is permanently connected in circuit by 39 and 40, that the lamp circuit is by the cam carrier, the contacts 36, and cam follower 28, and the leads 41 and 42 back to the power line 37. The lead 41, having reference to Fig. 3, includes the parts 29 and 30.

It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details of construction and arrangement and matters of mere form without departing from the spirit of the invention which is not limited to such matters or otherwise than the prior art and the appended claims may require.

I claim:

1. Flashlight mechanism comprising in combination a cam carrier driven at constant speed of revolution per unit of time and having alternating high and low cam parts arranged in circular rows concentric with the axis of revolution of the carrier and spaced apart at substantially equal linear distances in each row, a cam follower adapted to make and break a lamp circuit and adjustable across the face of the carrier for cooperation with the high and low cam parts of any one of the circular rows to provide different numbers of lamp flashes per unit of time, and means for adjusting the relative duration of the periods of the makes and breaks in respect to each other to provide for different relative lengths of periods of light and darkness in the flashes.

2. Flashlight mechanism comprising in combination a cam carrier having alternating high and low cam parts arranged in circular rows concentric with the axis of revolution of the carrier and spaced apart at substantially equal linear distances in each row, means for revolving the cam carrier at substantially uniform speed of revolution, a cam follower adjustable across the face of the carrier, a spring retracted rock shaft actuated by the cam follower and provided with a crank arm, a carrier adjustable in respect to the crank arm, and a mercury contactor tube carried by the crank arm.

3. Flashlight mechanism comprising in combination a cam carrier having alternating high and low cam parts arranged in circular rows concentric with the axis of revolution of the carrier and spaced apart at substantially equal linear distances in each row, means for revolving the cam carrier at substantially uniform speed of revolution, a cam follower adjustable across the face of the carrier for selective cooperation with one of said rows of cam parts, a spring retracted rock shaft actuated by the cam follower, and a circuit maker and breaker actuated by the rock shaft.

JEAN L. LE GORRE.